Patent Claims

1. A heat exchanger having a vacuum tube (4) with an outer wall (3), and having an inner tube (7, 8) which holds a fluid (17, 18) and whose outer wall (8) is arranged concentrically to a wall (3, 6) of the vacuum tube (4), at least one heat-conducting element (9, 29) connecting the aforesaid wall (6) of the vacuum tube (3, 4, 6) to the fluid-conducting pipe system (8), a means (5) which collects and concentrates solar energy being provided on the aforesaid wall (6), on the side of the vacuum tube (3, 4, 6) facing away from the heat-conducting element (9, 29), characterized in that the at least one heat-conducting element presses in each case with prestress against the aforesaid wall (6) of the vacuum tube (3, 4, 6) and against the fluid-conducting pipe system (8).

2. The heat exchanger as claimed in claim 1, characterized in that N heat-conducting elements (31, 32, 33, 34) are provided which each have at least two radially extending spring elements (31, 32, 34) which are each attached at a distance from one another on this fluid-conducting pipe system (8), along the longitudinal axis of the fluid-conducting pipe system (8), and on a heat-conducting baffle (33) of the associated heat-conducting element, where N>=2, and the attachment points of the spring elements (31) of successive heat-conducting elements (31, 32, 33, 34) each having an angular distance of 360/N degrees from one another in the section of the fluid-conducting pipe system (8).

3. The heat exchanger as claimed in claim 2, characterized in that each heat-conducting element has a heat-conducting baffle (33), a rod (31) which is attached to the heat-conducting baffle (33) or the fluid-conducting pipe system (8), a sleeve which is

attached to the fluid-conducting pipe system (8) or the heat-conducting baffle (33), and a spring element (34) which is arranged in the sleeve.

4. The heat exchanger as claimed in claim 1, characterized in that each heat-conducting element (29) has, in the cross section through the heat exchanger, a shape which includes a C with two free ends (20), the two free ends (20) pressing against the aforesaid wall (6) of the vacuum tube (3, 4, 6) and against the fluid-conducting pipe system (8).

5. The heat exchanger as claimed in claim 4, characterized in that N heat-conducting elements (29) are provided, where N>=8, the free ends (20) of which bear with prestress on the aforesaid walls (6, 8) over an angular range between 180/N to 360/N degrees, preferably between 270/N to 360/N degrees.

6. The heat exchanger as claimed in claim 1, characterized in that each heat-conducting element (9) extends in a spiral shape in cross section and/or covers an angle of at least 45 degrees, advantageously of more than 720 degrees.

7. The heat exchanger as claimed in claim 6, characterized in that one or two heat-conducting elements (9) bear spaced apart from one another in an angular range (10) on the outer wall of the fluid-conducting pipe system (8), in particular over an angular range between 350 to 359 degrees or between 90 and 179 degrees.

8. The heat exchanger as claimed in one of claims 1 to 7, characterized in that the fluid-conducting pipe system (8) comprises an outer volume (18) and an inner volume (17) which can in particular be operated in the counter-current mode.